



NOV 10 1998

FCC MAIL ROOM

**TO:** Magalie Roman Salas  
Secretary  
Federal Communications Commission  
1919 M Street NW, Room 222  
Washington, DC 20554

**FROM:** Robert D. Hostetler, President and CEO, American Telecasting, Inc.

**DATE:** 11/9/98

**RE:** Ex Parte CC Docket No. 98-146

1. The date of the meeting was October 27, 1998. The participants were:  
Andy Kreig, President, Wireless Communications Association International  
Pat McConnell, President, McConnell Communications, Inc.  
Sirus Chitsaz, Senior Partner, Rendall and Associates  
Robert D. Hostetler, President and CEO, American Telecasting, Inc.  
John R. Williams, Senior Electronics Engineer, Federal Communications Commission  
Jennifer Fabian, Policy Analyst, Federal Communications Commission  
Johnson Garrett, Policy Analyst, Federal Communications Commission  
John W. Berresford, Senior Antitrust Attorney, Federal Communications Commission  
Evan Kwerel, Senior Economist, Federal Communications Commission

2. Discussed in the meeting was information on the degree of competition that the wireless cable industry expects to offer in local access for data and telephony. Also discussed was what regulatory help we need to make our competitive position most effective.

3. ATI's strategic presentation was reviewed and copies are attached.

Should you have any questions, please feel free to contact us.

11. # of Copies rec'd  
UNCLASSIFIED

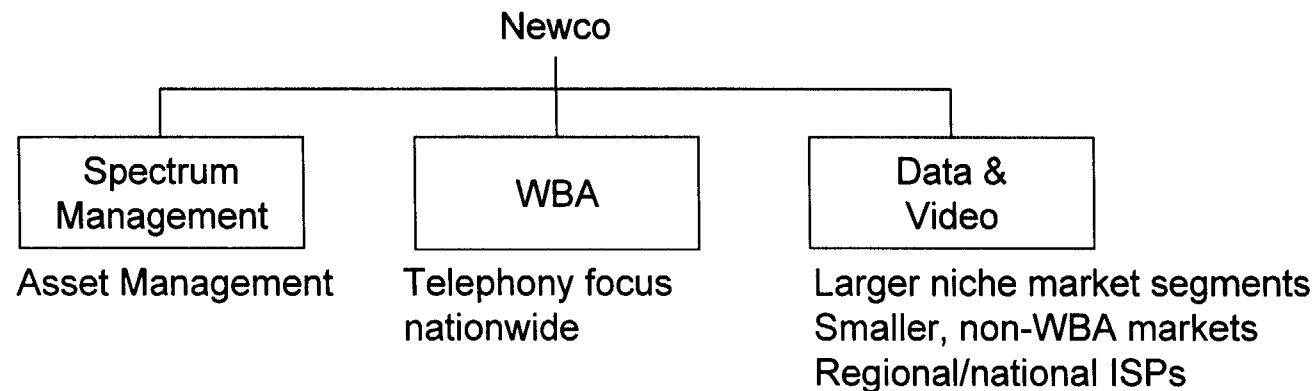
Robert D. Hostetler, President and CEO

# **MMDS**

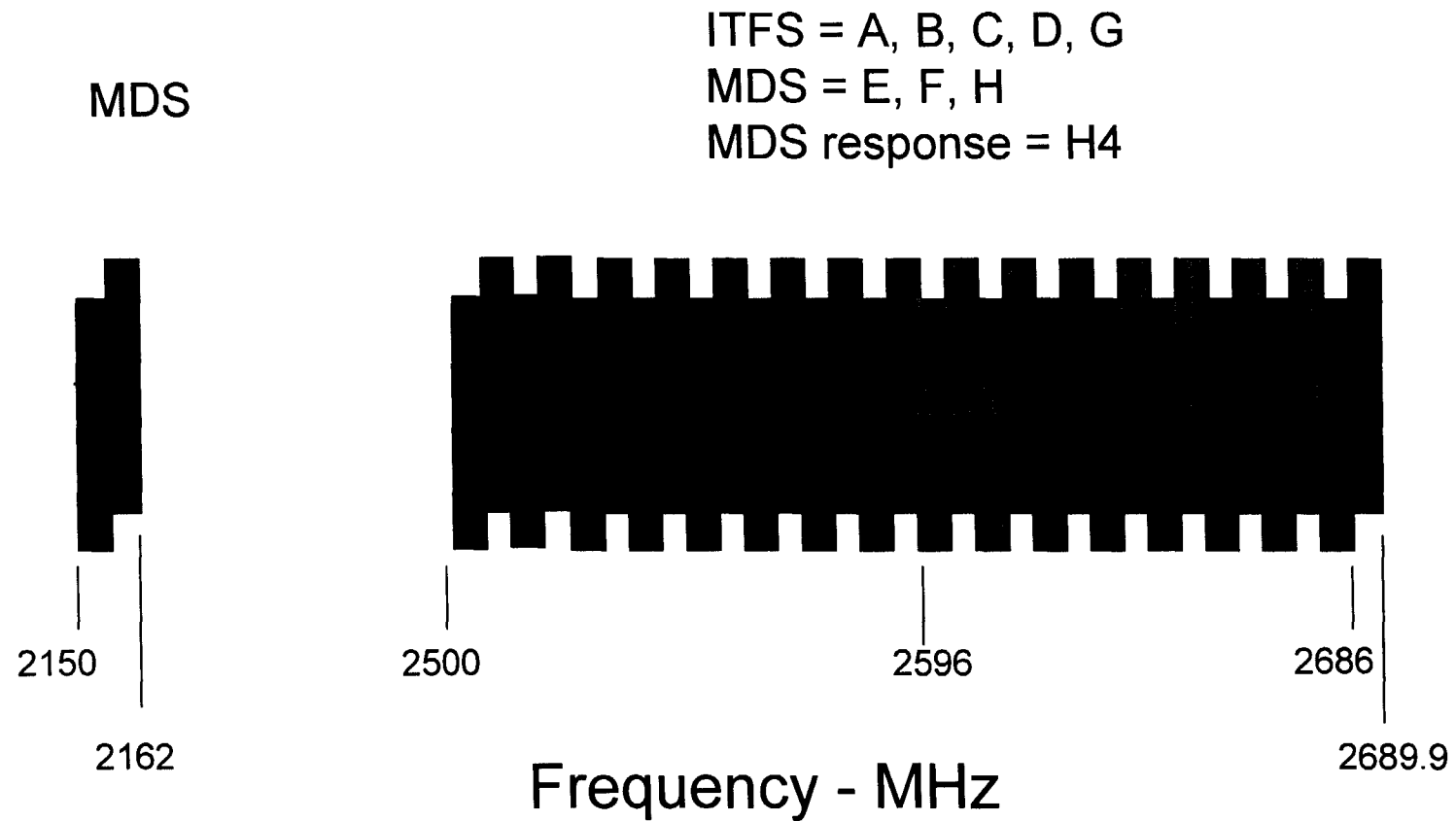
## **Wireless Broadband Access**

# Value Creation

- Newco strategy is to use 12 dedicated MDS channels (72 MHz) for WBA on a nationwide basis
- Typical ownership/control of MDS/ITFS spectrum in a market is 24-28 channels
- Remainder of MDS/ITFS frequencies, plus the experience and assets of the current operators, can be leveraged for additional value creation



## ITFS and MDS Channels



# Snap Shot of Value Creation

## Current MMDS (MDS)

### Operators

- Alternate access
- Ongoing spectrum management
- Experience in CPE deployment and operation
- Other spectrum assets

## Retailer

- Brand name
- Bundling and distribution
- Network infrastructure
- Billing and provisioning
- Backbone (data & voice)

Newco

## 10-20 Channel data and video

Estimated business case \$10-\$20/HH

**12-Channel WBA  
Local Loop telephony**  
Newco business case:  
\$25-\$35/HH

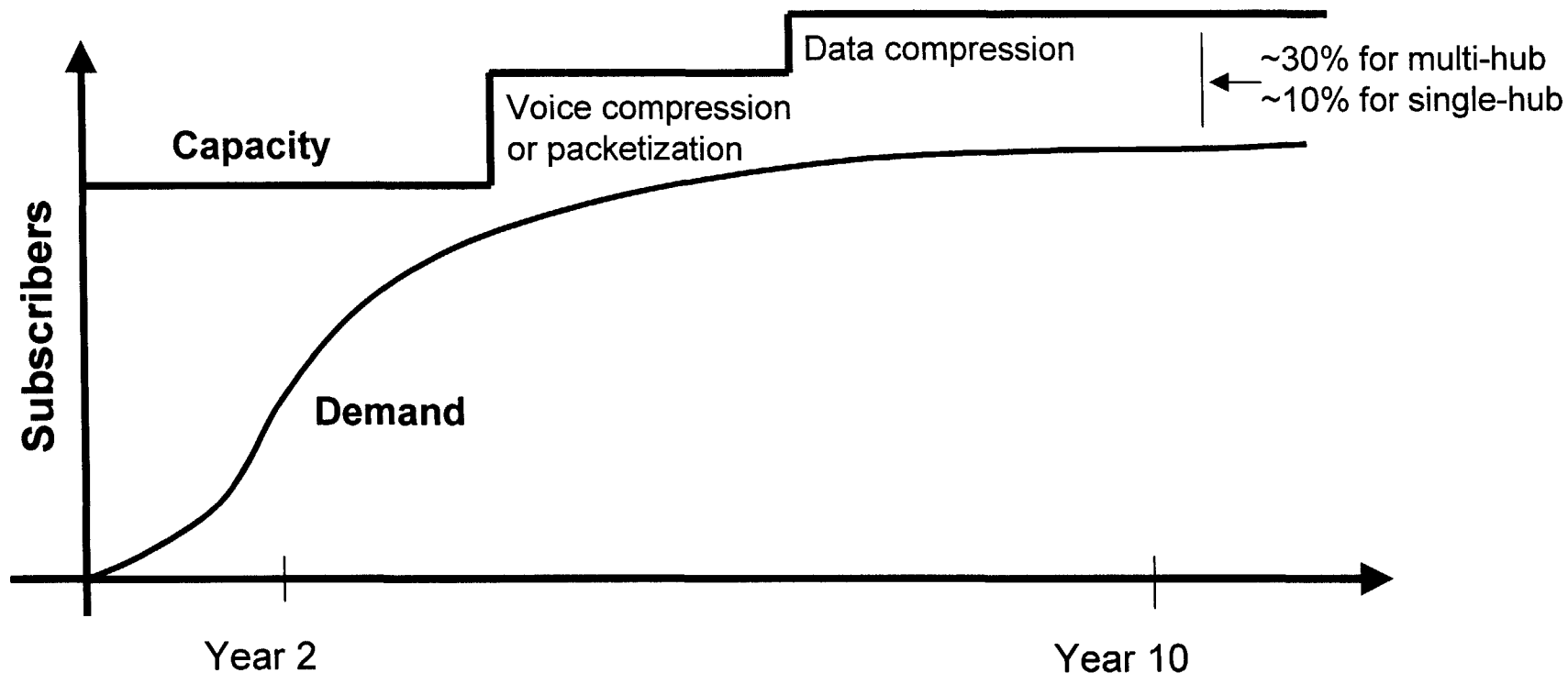
## Alternative source of customer access

- Decreased RBOC reliance
- Increased availability

# **WBA**

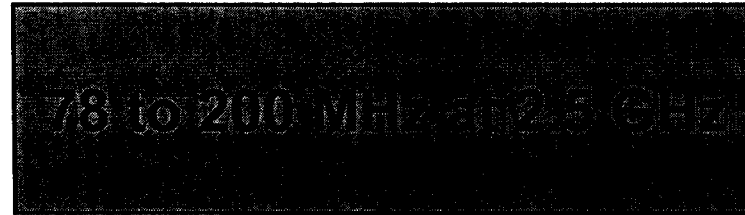
## **Technology Management**

# Demand and Capacity Evolution



- Voice compression gains significant capacity
- Data compression provides “headroom”

# Wireless Broadband Access Architecture Strategy



Small to medium markets  
Good L.O.S.  
Single hub  
Multi-sector (15)  
Radius 25 miles (to 2000 sq. mi.)

High density  
Difficult L.O.S.  
Multi-hub  
Multi-sector (4 or 6)  
Radius 5-10 miles (100-300 sq. mi.)

- ATM over the air plus medium access control
- Effective utilization of the spectrum to create burst “real time” services plus toll quality voice (look and feel of a dedicated line for a given service)

# **Utilization Strategy**

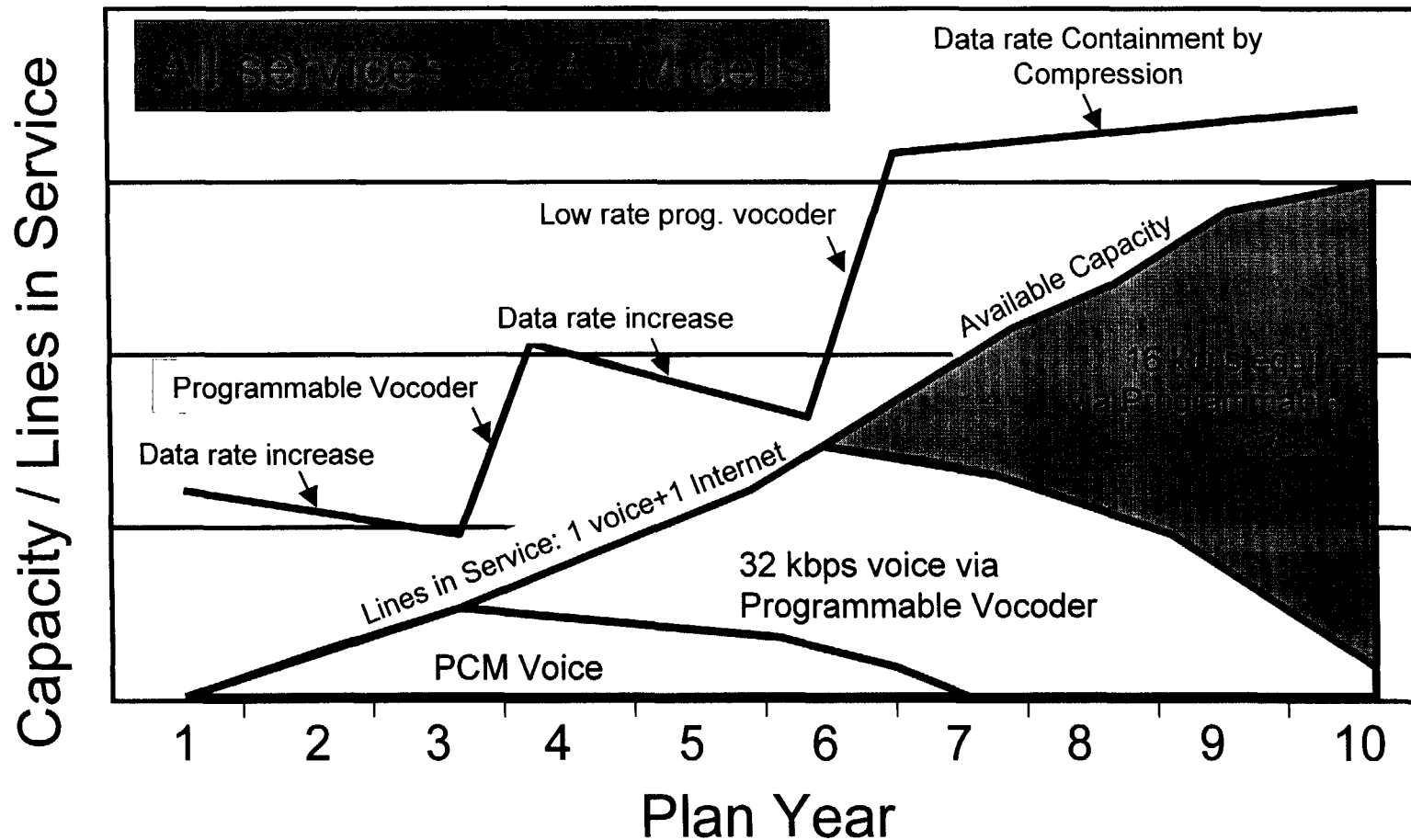
## **12 RF Channels, Single 15-Sector Hub**

- Service Definition: 1 voice line and 1 Internet line
- Initial Service
  - Voice line at 64 Kbps clear channel rate
  - Internet download: 1.5 Mbps, upload: 256 Kbps, etc.
- Assumptions
  - Internet demand will continuously increase
  - Low speed vocoders will become acceptable for voice
- Growth
  - Year 3: Introduce programmable vocoder in all new gateways; begin use at 32 Kbps; immediate increase in available capacity.
  - Year 6: Introduce 16 Kbps vocoder in hub and begin over the air upgrade of gateways; capacity can be increased as needed.
  - Year 7 Introduce serial compression for data to contain bandwidth requirements.

**Bottom line: 12 RF channels with upgrades support projected 10-year growth in single-hub market.**

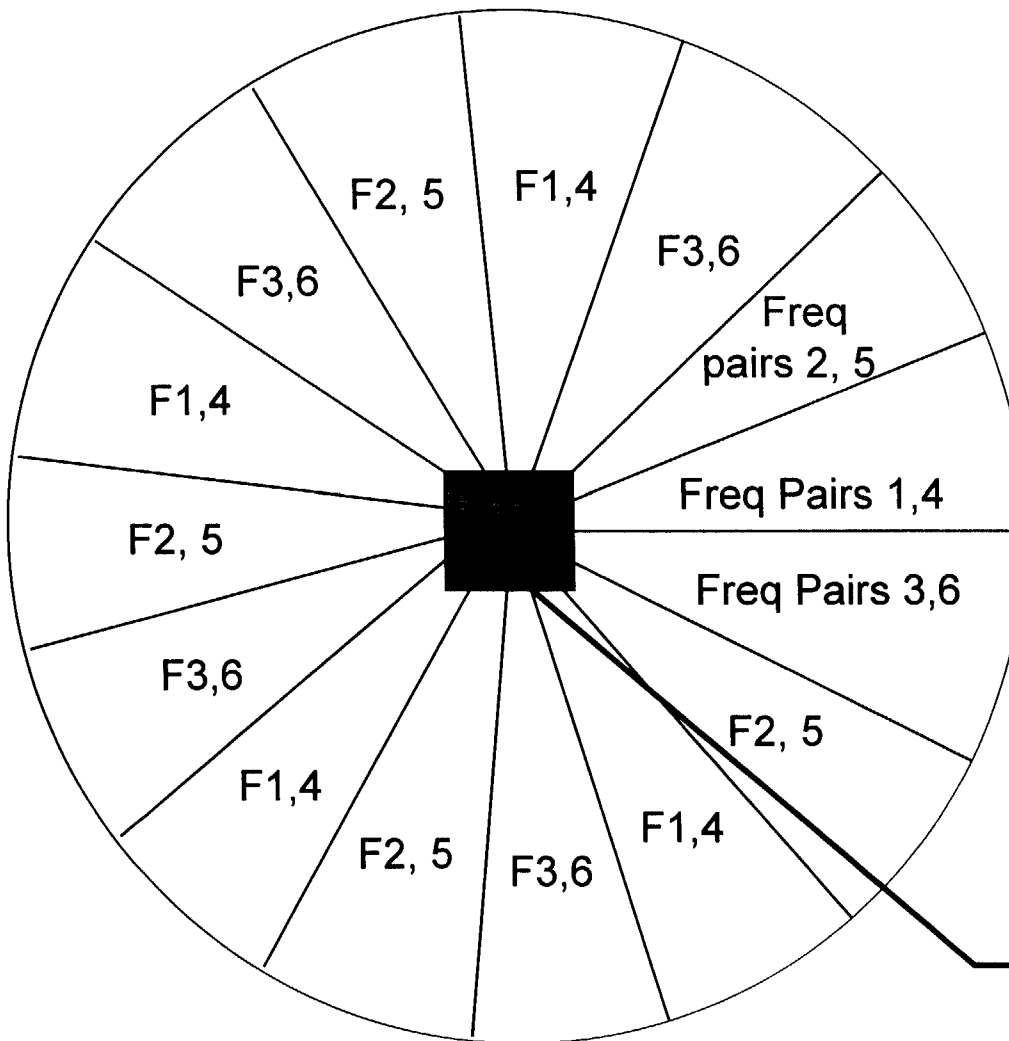
# Utilization Strategy

## 12 RF Channels, Single 15-Sector Hub



# Single-Cell MDS Architecture

## 15 Sectors



### Cell

15 sectors

One polarization

Freq reuse: 3 sector

### Sector

↖ 2 MDS channels  
downstream 16QAM

↖ 2 MDS channels  
upstream QPSK

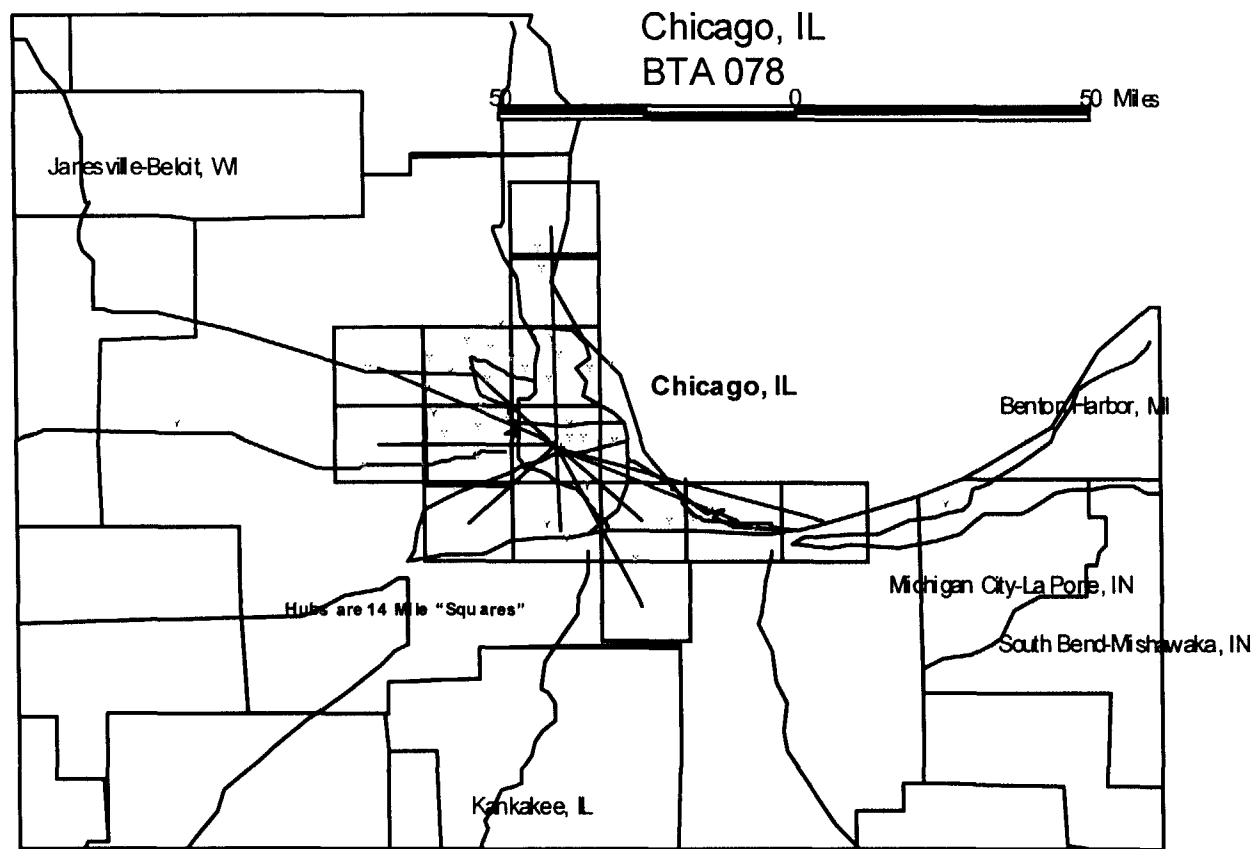
Frequency Pair = one  
upstream 6 MHz channel  
and one downstream 6  
MHz channel

Voice and  
Data Networks

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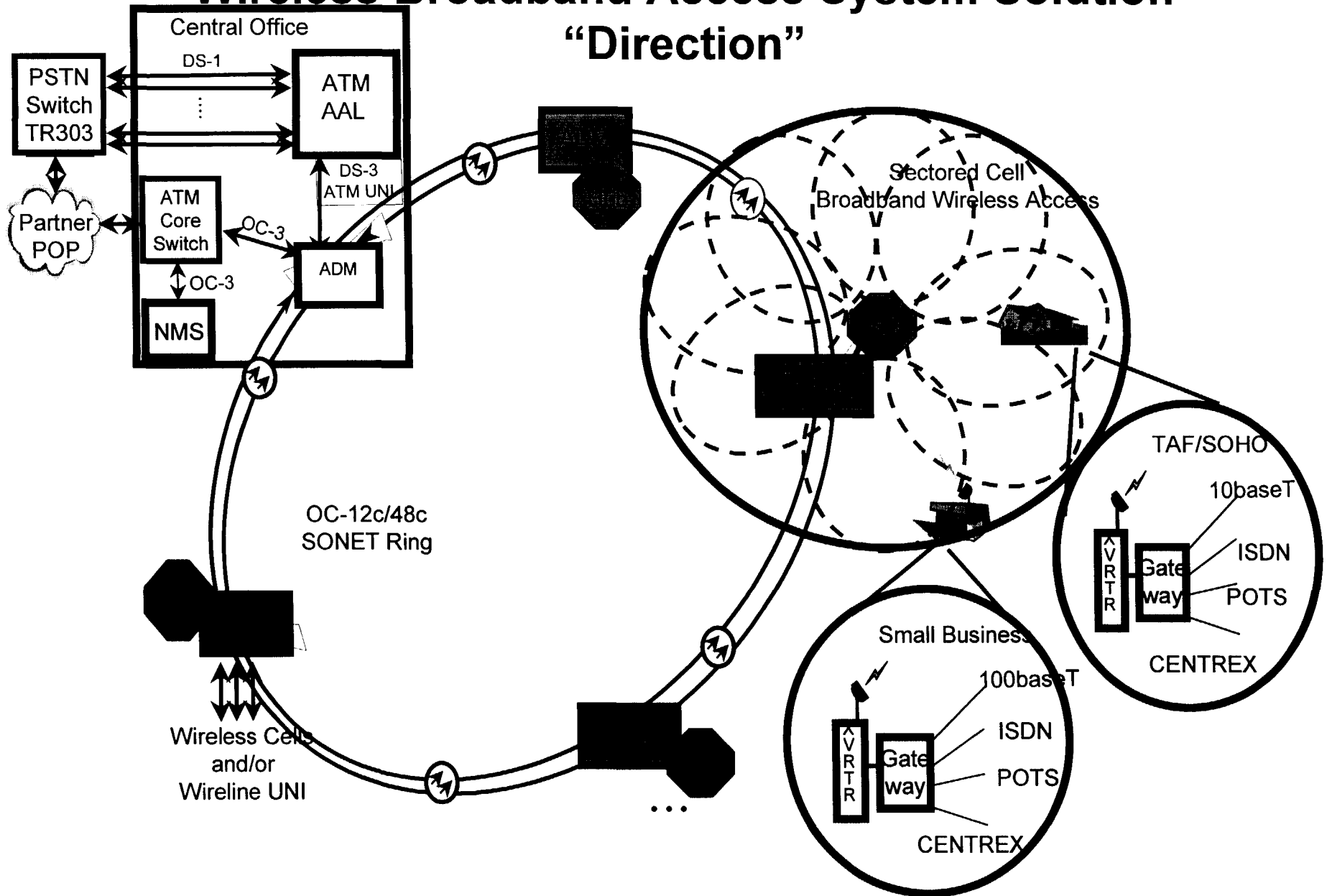
## 11

# Multi-hub Coverage

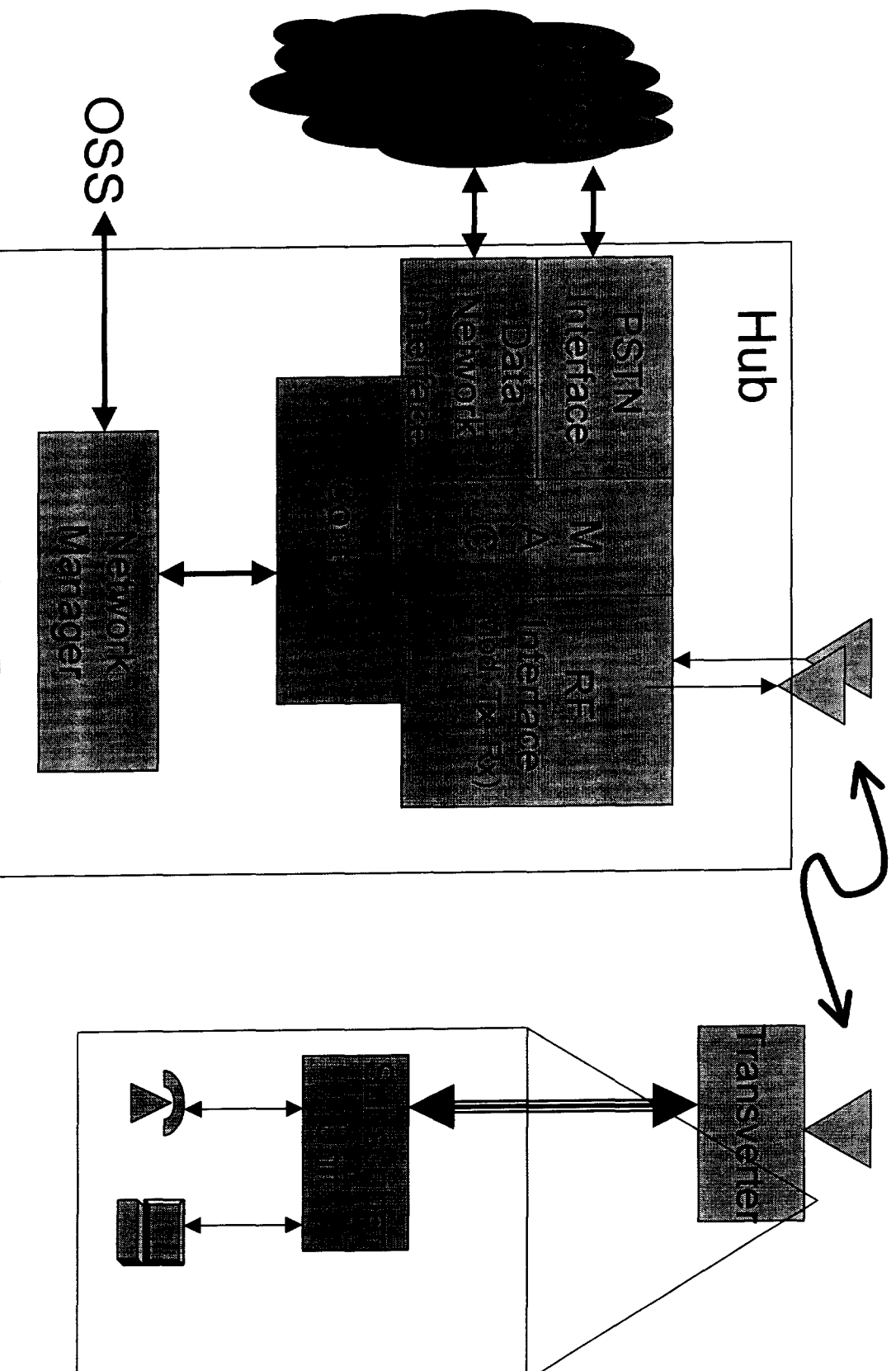


# Wireless Broadband Access System Solution

## "Direction"



# WBA Hub/CPE Architecture



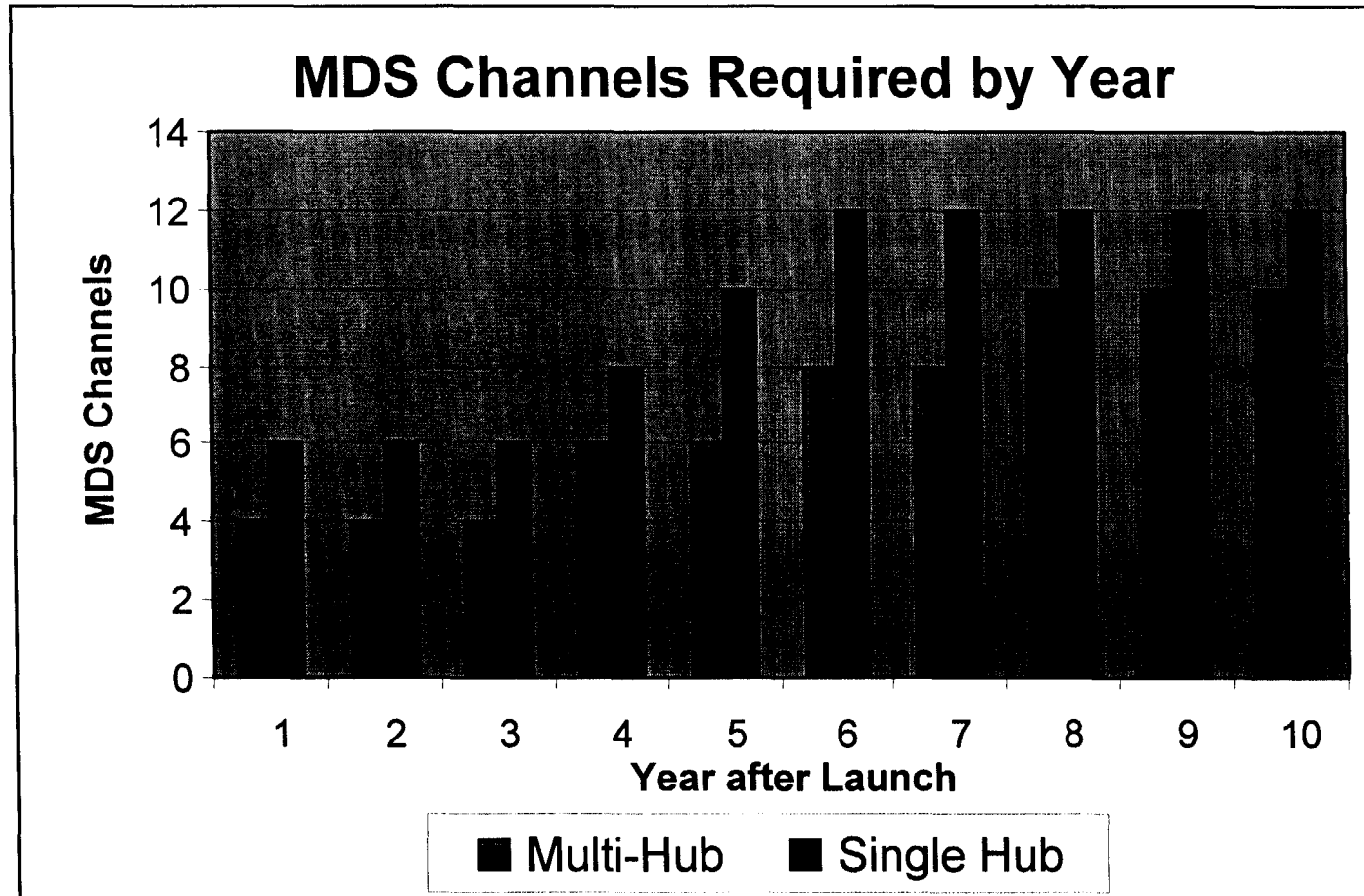
# NewCo

## Business Case Summary Overview

## **Conservative and Prudent Approach in Business and Technology**

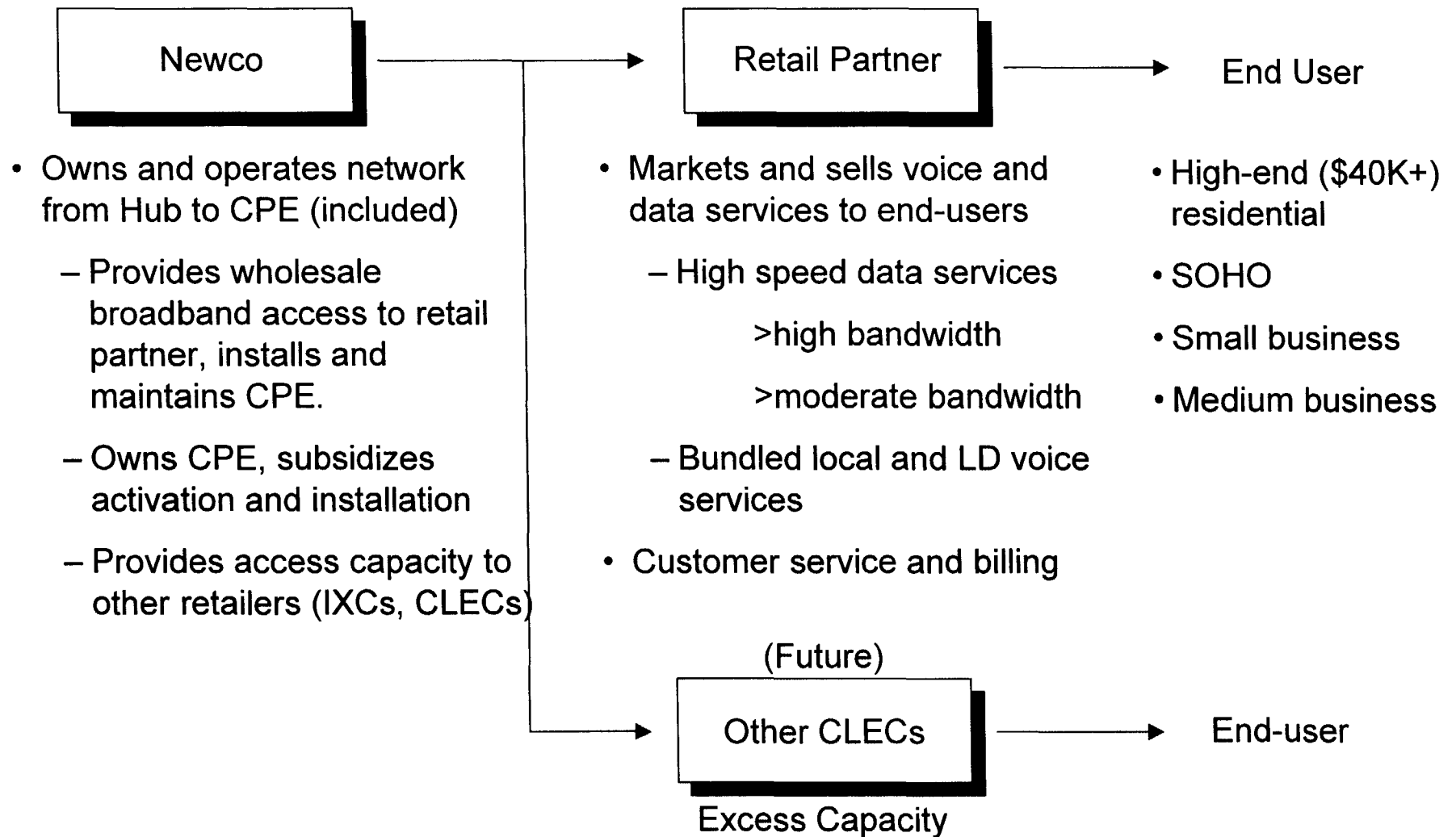
- Initial rollout will not require all 12 channels of spectrum
- Excess capacity can be sold to others for local loop bypass
- Retail case revenue can be increased substantially by more aggressive market rollout, covering 2nd- and 3rd-level markets
- Newco can streamline current video business and create a niche business:
  - data networks
  - niche video packages
  - educational information packages
  - 2-way streaming video channels
- Technology migration will significantly increase utilization of the MDS channels (cost/performance)
  - smart antennas/DSP/higher modulation techniques
  - data compression, Voice over IP, Fax over IP

# Channel Utilization



- VoIP concentration beginning in year 3
- Data Compression beginning in year 6

# Proposed Business Relationship WBA “Telephony Focus”



# Financial Implications



## Revenue Streams

- 100% of CPE installation and activation fee
- 100% internet access fees
- 75% local service fees
- 100% termination long distance with fees
- *CPE sales?*

## Operating Expenses

- Network operations
- Backbone access
- CPE installation and maintenance
- Wholesale billing and customer service
- G&A

## Capital Expenditures

- 100% Network, from hub to CPE

## Revenue Streams

- 100% ISP service fees
- 25% of local service fees
- 100% LD service fees
- *CPE sales or leasing fees?*

## Operating Expenses

- Marketing and sales
- Primary billing and customer service
- G&A

## Capital Expenditures

- OSS and switching

# **Business Case**

## **Basic Methodology**

- Financial Model Overview
  - Newco as wholesaler to multiple retailers (IXCs, CLECs)
    - rollup model of 31 selected markets based on both single- and multi-hub metrics
  - Retail model is built over roll-up model (portion of Newco capacity)
- Basic Business Relationships
  - IXC retailer contracts with and bills end-user
  - IXC retailer places service order with Newco
  - Newco installs CPE at customer site
  - Newco owns and services the network from IXC PoP through CPE
  - Newco charges IXC retailer for installation of CPE (subsidized by Newco) and ongoing monthly service(s)

## **Service Mix**

### **Wireless Broadband Access**

- Bundled basic local voice and long distance
- Advance features (caller ID, etc...)
- Residential first-/second-/third-line service (bundled voice, long distance and Internet)
- Centrex-type services to medium businesses
- Virtual Private Network  
(data and Internet focus)

**Basic services are driven by high-speed data**

# **Demand Model**

## **Business Case Analysis**

- Residential
  - voice line = .1 Erlang
  - Internet user (pipe) = 6,000 bps average/hour downstream
  - focus interval = 20 minutes
  - active Internet users at any time = 10%
- Business
  - voice line = .15 Erlang
  - Internet user (pipe) = 12,000 bps average/ hour downstream
  - focus interval = 20 minutes
  - active Internet users at any time = 10%
- Overlap of Busy Hours
  - no significant overlap of business and residential voice or Internet usage

# Business Case Results

## Customer Types

- Residential
  - focus on >\$40K HH income (40% of HH's)
  - HS Internet is driver; subscriber HH's could be: HS Internet only, bundled HS Internet + voice, or voice only (1 or 2 lines)
- SOHO
  - 1.8 employees/subscriber; 1.8 voice lines/voice subscriber
  - services are voice, Internet, bundled voice + Internet
- Small Business
  - 11.2 employees/subscriber; 3.7 voice lines/voice subscriber
- Medium Business
  - 83 employees/subscriber; 16.6 voice lines/voice subscriber

# Revenue Assumptions

- Demand and pricing are analyzed from end-user perspective
  - local service: “Retailer Gross Margins” reflect difference between what end-user pays and what Newco charges to IXC retailer
  - Internet: Newco keeps 100% of access; retailer keeps 100% of “ISP Service” & VPN
- Retailer Gross Margins
  - 25% on local voice
  - Newco keeps 100% of installation/activation (Newco subsidizes installation cost)
- Long Distance
  - IXC bills end-user for all LD
  - IXC not charged for originating access charges
  - Newco keeps terminating access charges

# Internet Market Segmentation Strategy

- High Speed Residential
  - 1 Mbps down, 256 Kbps up -- doubling speed every 3 years
  - pricing @ \$45/month
    - \$25 access; \$20 ISP
    - @Home model = \$30 access, \$15 ISP
- Moderate BW Business
  - 1 Mbps down, 256 Kbps up -- doubling speed every 3 years
  - pricing @ \$75/month -- target is today's ISDN user
    - \$25 access; \$50 ISP
- High BW Business
  - 3 Mbps down 1 Mbps up-- doubling speed every 3 years
  - pricing @ \$1000/month -- target is today's T-1 Internet user
    - \$200 access; \$800 ISP

**Continue to target early adoptor segment by  
increasing bandwidth**

## Other Pricing Assumptions

- Local Voice Service (first-/second-/third-line)
  - Estimates based on current average ILEC pricing and revenue
  - Residential @ \$15/month
  - Business @ \$30/month
- Long Distance
  - Price/MOU & average MOU's based on current averages/trends
  - Residential @ \$0.12/MOU
  - Business @ \$0.10/MOU
- Activation/Installation Charges
  - Residential @ \$100
  - Business @ \$200
- Bundling Discounts
  - 10-15% discount on each service bundled
- Terminating Access Charges
  - Newco keeps access charges for terminating traffic

# Penetration and Market Assumptions

## Single-hub MSA

- Population = 1.5 million
  - 670K HH's
  - 55K businesses
- Addressed Market
  - 87% of POPs fall within radius of tower (business = 90%)
  - 75% of these offer LOS (business = 85%)
- Penetration of addressed market segments - Year 10

	Voice	High BW	Moderate BW	%Bundled
<b>Residential</b>	6.2%	N/A	10.1%	50%
<b>SOHO</b>	8.6%	0.4%	5.4%	40%
<b>Small Business</b>	9.4%	3.6%	9.0%	40%
<b>Medium Business</b>	9.4%	10.2%	N/A	50%

Notes:

(1) residential penetration is % of LOS HH's

(2) business penetration is % of LOS businesses in that segment

(3) Penetration assumptions are the same for both markets, except for slight difference in residential voice (demographics)

(4) residential voice includes dial-up Internet users (access portion only)

# Penetration and Market Assumptions

## Multi-hub BTA

- Population = 7.9 million
  - 3.1M HH's
  - 218K businesses
- Addressed Market
  - 14 x 7-mile radius hubs
  - 66% of POPs fall within radius of hubs (business = 70%)
  - 80% of these offer LOS
- Penetration of addressed market segments - Year 10

	Voice	High BW	Moderate BW	% Bundled
<b>Residential</b>	6.1%	N/A	10.1%	50%
<b>SOHO</b>	8.6%	0.4%	5.4%	40%
<b>Small Business</b>	9.4%	3.6%	9.0%	40%
<b>Medium Business</b>	9.4%	10.2%	N/A	50%

Notes:

- (1) residential penetration is % of LOS HH's
- (2) business penetration is % of LOS businesses in that segment
- (3) penetration assumptions the same for both markets, except for slight difference in residential voice (demographics)
- (4) residential voice includes dial up Internet users (access portion only)

# **Newco Business Model**

## **Individual Market vs. Rollup View**

- Detailed financial models prepared for single-hub and multi-hub markets
- Extrapolated results applied to additional target markets
  - current rollup model based on build-out of 31 large markets
- Rollup view also includes items not specifically accounted for at the market level
  - corporate staff & facilities
    - ongoing administration & technology development
    - trials
    - pre-operating expenses
  - national/regional network management centers

# Newco Business Case

## CPE Capital & Operating Cost Assumptions

- CPE Capex (Newco)
  - Newco owns CPE; retailer pays a fee for activation/installation
  - cost of RGW + RF = \$750; cost of CGW + RF = \$1750
  - prices decrease @ 10%/year through Yr4, then 5%/year
  - capitalized installation costs
    - RGW = 8 MH/CPE (Yr1) ==> 4 MH/CPE (Yr 4-10) (\$228 ==> \$96)
    - CGW = 16 MH/CPE (Yr1) ==> 8 MH/CPE (Yr 4-10) (\$624 ==> \$253)
    - materials (cabling, etc.) = \$100 residential; \$200 business
  - all voice-related CPE after Yr 2 is converted to 32Kb programmable
- CPE Maintenance Expense (Newco) = \$22/year/CPE
  - monthly rate of customer calls = 20% ==> 5% (Yr 4)
  - calls requiring truck roll = 90% ==> 60% (Yr 4)
  - truck roll MH's = 2.0 ==> 1.0 (Yr 4)
  - 50% of truck rolls require parts @ \$50
  - one-year warranty on CPE

# Newco Business Case

## Other Capex Assumptions

- Hub Capex
  - hub components added to meet traffic requirements
  - single hub starts @ \$1.7M and increases to \$3.5M over 10 years
    - \$675K for NMS
    - integration & installation
    - 5%/year for performance upgrades, new software loads, etc.
    - technology migration (32 Kbps programmable CPE, 16 Kbps-equivalent software)
  - multi-hub starts @ \$700K and increases to about \$1.0M per hub
    - NMS shared by all hubs
    - integration & installation, performance upgrades and technology migration costs noted above under single-hub model.
- Other Capex
  - leasehold improvements (hubs & admin) -- leased facilities
  - PC's, furniture & fixtures
  - installation & test equipment for vans -- vans are leased
  - FCC engineering & licensing fees

# Operating Expense Assumptions

- Headcount
  - engineering, hub maintenance, CSR's, CPE installation & maintenance, minimal marketing & administration
- Backhaul to IXC PoP or ISP -- Leased Fiber
  - total bandwidth required based on:
    - residential and business voice lines @ .1 Erlangs, .15 Erlangs, respectively
    - Internet usage based on # of requests in busy hour (BH) and average files size
  - Chicago uses "Star" architecture
- Vendor Maintenance Contracts = 5% of cumulative Hub capex
- Facilities Leases and Vehicle Expenses
- Marketing -- 2% of revenue for promotions/co-op advertising
- Channel Leases -- Non-owned Frequencies
- Misc. G&A -- utilities, insurance, taxes, legal, etc.
  - \$100K minimum plus 2-3% of revenue

Conservative, comprehensive approach in estimating expenses

# **Newco Rollup Business Case Corporate Level Assumptions**

- Rollout
  - “Full Scale Buildout” -- 31 markets over 5 years
  - 4.3 Million Lines by Yr 10
- Headquarters Personnel -- 56 Yr 1 ==> 431 Yr 10
  - operations -- training, customer support, network support & R&D
  - management -- regional operations directors, corporate executives
  - administration -- accounting, legal, HR, marketing
- Facilities & Personnel-related Expenses
- Legal & Consulting
- Capex
  - network management = \$24 million
  - other capex related to personnel (PC's, office equipment, etc.)

## Newco Business Case Financial Snapshot--Rollup

	<i>Year 3</i>	<i>Year 5</i>	<i>Year 10</i>
<i>POP's Addressed</i>	65M	92M	92M
<i>Markets Addressed</i>	16	31	31
<i>Lines</i>	245K	985K	4.3M
<i>Local Voice</i>	132K	473K	2.0M
<i>Internet</i>	113K	512K	2.3M
<i>Revenue</i>	\$64M	\$246M	\$1,011M
<i>Net Income</i>	(\$51M)	(\$41M)	\$142M
<i>EBITDA %</i>	9%	43%	57%
<i>Fixed Assets</i>	\$300M	\$806M	\$2.4B
<i>Equity Investment</i>	\$141M	\$307M	\$344M
<i>Debt</i>	\$220M	\$515M	\$1.0B

**Equity Valuation NPV = \$904M, \$25/HH, IRR 50%**

NOTE: NPV of Project Free Cash Flow = \$472M (net income + depreciation +/- change in working capital - Capex)  
Equity Valuation NPV is based on net cash flows to/from equity. All NPV calculations based on 15% discount rate and 10X EBITDA terminal value.

# Sensitivity Analysis Results

- Highly Sensitive Assumptions
  - end-user price points
  - access charges
  - retailer gross margins
- Moderately Sensitive Assumptions
  - penetration
  - line-of-sight HH's
  - Internet price trends
  - initial CPE costs
- Relatively Insensitive Assumptions
  - operations headcount
  - backhaul

# Newco Business Case

## Financial Snapshot--Worst Case Scenario--Rollup

	<i>Year 3</i>	<i>Year 5</i>	<i>Year 10</i>
<i>POP's Addressed</i>	65M	92M	92M
<i>Markets Addressed</i>	16	31	31
<i>Lines</i>	196K	788K	3.5M
<i>Local Voice</i>	106K	378K	1.6M
<i>Internet</i>	90K	410K	1.9M
<i>Revenue</i>	\$49M	\$188M	\$766M
<i>Net Income</i>	(\$55M)	(\$63M)	\$116M
<i>EBITDA %</i>	-8%	35%	54%
<i>Fixed Assets</i>	\$270M	\$701M	\$2.0B
<i>Equity Investment</i>	\$141M	\$331M	\$430M
<i>Debt</i>	\$196M	\$442M	\$817M

Equity Valuation: NPV = \$515M, \$14/HH, IRR 39%

# **Retail**

## **Business Case Summary Overview**

# Revenue and Cost of Sales Assumptions

## Retailer Model

- Retailer bills end-user for all charges
- Cost of sales
  - paid to Newco
    - Internet -- access portion
    - wholesale price of local voice line (\$15)
  - paid to terminating LEC
    - terminating access charges for LD originating traffic
  - paid for ISP services (internal costs)
    - residential gross margin = 40%
    - moderate BW business gross margin = 50%
    - high BW business gross margin = 60%
- Cost of activation and installation passed through

# Retailer Business Case Assumptions

- Capex
  - OSS & billing -- \$100/Sub
  - switching -- \$50/Line
- Marketing
  - advertising = 10% revenue
  - sales channel = \$200 per residential gross add  
= \$400 per business gross add
- Operations
  - billing costs = \$2.50/month/sub
  - customer service -- \$32K fully-loaded cost/CSR
  - NOC -- maintenance & provisioning
  - IT development & maintenance
- Administration
  - minimum \$5M
  - additional % of revenue = 3%

## Retailer Business Case Financial Snapshot

	<i>Year 3</i>	<i>Year 5</i>	<i>Year 10</i>
<i>Revenue</i>	\$132M	\$520M	\$2.3B
<i>Cost of Sales</i>	\$76M	\$309M	\$1.3B
<i>Gross Margin</i>	42%	40%	43%
<i>Net Income</i>	(\$5M)	\$22M	\$245M
<i>EBITDA %</i>	-1%	7%	18%
<i>Fixed Assets</i>	\$32M	\$110M	\$488M
<i>Investment Required</i>	\$78M	\$187M	\$365M

**NPV = \$886M, \$30/HH, IRR=53%**

Revenue can be substantially increased by more aggressive market rollout

NPV Based on Free Cash Flow @ 15%, Terminal Value = 10X EBITDA

# NewCo

## The Other Business

## Types of Markets


	Rural	Midsize	Large
ATI	X	XX	X
PCTV		X	XX
WHI		X	XX
CAI		X	XX
CS	X	XX	X
Heartland	XX	X	X
Wireless One	XX	X	X

X = limited markets

XX = principal market type

## Newco Market Summary

	Phase 1 Launch	Phase 2 Launch	Mid-size (>100K)	Rural (<100K)
Markets	31	30	73	126



Newco model addresses only a portion of available markets and spectrum opportunities

## Other Spectrum Options

- ✓ Expand WBA into other markets
  - Launch phases 1 and 2 - 61 Newco markets
  - 73 mid-size Newco markets
- ✓ Separate out rural markets
- ✓ Wholesale spectrum for high-speed Internet access
- ✓ Expand WBA into ITFS consortiums
  - Offer voice/data/video business bundles
  - Partner with DTH providers
  - Deploy digital video

## Separate the Rural Markets

- Rural markets managed/financed separately or spun off
- Analog video or video/DTH bundle
- 126 markets
  - 76 operating
  - 51 non-operating
- 6.8MM households
- 165,100 subscribers
- \$67.4MM annual revenue - 20% EBITDA
- \$150MM estimated enterprise value
  - \$400 per subscriber
  - \$15/LOS HH

# Rural Analog Video

Rural Analog Video										
DCF Value per Household										
Low Growth										
	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Number of Rural Markets*	126	126	126	126	126	126	126	126	126	126
Total Footprint Households	6,800,000	6,936,000	7,074,720	7,216,214	7,360,539	7,507,749	7,657,904	7,811,063	7,967,284	8,126,629
Average Line of Sight	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%
LOS Households	4,760,000	4,855,200	4,952,304	5,051,350	5,152,377	5,255,425	5,360,533	5,467,744	5,577,099	5,688,641
Ending LOS HH Penetration	3.5%	3.5%	3.6%	3.7%	3.8%	3.9%	4.0%	4.1%	4.2%	4.3%
Ending Video Subscribers	165,172	169,932	178,283	186,900	195,790	204,962	214,421	224,177	234,238	244,612
Service Revenue	\$34.00	\$35.02	\$36.07	\$37.15	\$38.27	\$39.42	\$40.60	\$41.82	\$43.07	\$44.36
Installation Revenue (% of Service Revenue)	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Operating Expense -- % of Revenues	60.0%	55.0%	50.0%	48.0%	46.0%	44.0%	42.0%	42.0%	42.0%	42.0%
Selling, G&A Expenses -- % of Revenues	60.0%	50.0%	40.0%	39.0%	38.0%	37.0%	36.0%	35.0%	35.0%	35.0%
Monthly Churn	3.0%	2.8%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%
Capital Expenditures										
Variable Equipment Cost per Gross Add	\$200.00	\$190.00	\$180.50	\$171.48	\$162.90	\$154.76	\$147.02	\$139.67	\$132.68	\$126.05
Rate of New Equipment Needs per Gross Add	8%	12%	15%	15%	15%	15%	15%	15%	15%	15%
Variable Labor and Other Costs per Gross Add	\$200.00	\$200.00	\$200.00	\$200.00	\$200.00	\$200.00	\$200.00	\$200.00	\$200.00	\$200.00
Total Variable Cost per Gross Add	\$216.00	\$222.80	\$227.08	\$225.72	\$224.44	\$223.21	\$222.05	\$220.95	\$219.90	\$218.91
Total Variable Costs	1,254,944	1,116,825	1,948,523	1,999,819	2,052,717	2,107,255	2,163,474	2,221,417	2,281,125	2,342,643
Video Maintenance	2,000,000	2,000,000	1,940,000	1,881,800	1,825,346	1,770,586	1,717,468	1,665,944	1,615,966	1,567,487
Total Video Capital Expenditures	3,254,944	3,116,825	3,888,523	3,881,619	3,878,063	3,877,840	3,880,942	3,887,361	3,897,091	3,910,130
Operating Results										
Total Video Revenue	\$ 69,411,881	\$ 73,554,590	\$ 79,484,351	\$ 85,825,878	\$ 92,605,658	\$ 99,851,807	\$ 107,594,163	\$ 115,864,388	\$ 124,696,080	\$ 134,124,886
Operating Expense	41,647,129	40,455,025	39,742,176	41,196,421	42,598,603	43,934,795	45,189,548	46,663,043	48,372,354	50,332,452
Selling, G&A Expenses	41,647,129	36,777,295	31,793,741	33,472,092	35,190,150	36,945,169	38,733,899	40,552,536	43,643,628	46,943,710
EBITDA from Operations	\$ (13,882,376)	\$ (3,677,730)	\$ 7,948,435	\$ 11,157,364	\$ 14,816,905	\$ 18,971,843	\$ 23,670,716	\$ 26,648,809	\$ 28,680,099	\$ 30,848,724
Capital Expenditures	3,254,944	3,116,825	3,888,523	3,881,619	3,878,063	3,877,840	3,880,942	3,887,361	3,897,091	3,910,130
EBITDA less CAPEX	(17,137,320)	(6,794,555)	4,059,912	7,275,745	10,938,843	15,094,003	19,789,774	22,761,448	24,783,008	26,938,594
DCF	15% WACC									
Terminal Value = 10x										
Cashflows		(17,137,320)	(6,794,555)	4,059,912	7,275,745	10,938,843	15,094,003	19,789,774	22,761,448	24,783,008
Net Present Value	103,591,283									308,487,237
NPV per Household	\$ 15.23									335,425,831
* Includes non-operating markets										

## Wholesale Spectrum to ISPs

- Channels can be leased to ISP's for high-speed Internet access
- Appropriate for markets in which MMDS companies have only 2-4 channels
- Capture 30%-40% of ISP's high-speed revenue
- Non capital-intensive
- Estimated annual revenue of \$22.5 million
  - 400,000 end users @ 10th year
  - \$5.00/end user/month for Newco
  - annual EBITDA of \$24 million in 10th year
  - DCF of \$120 million
    - 10X terminal value
    - 15% discount rate

# Wholesale Internet

Wholesale Internet Pipe											
DCF Value per Household											
	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	
Number of Rural Markets*	225	225	225	225	225	225	225	225	225	225	
Total Footprint Households	56,250,000	57,375,000	58,522,500	59,692,950	60,886,809	62,104,545	63,346,636	64,613,569	65,905,840	67,223,957	
Average Line of Sight	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%	
LOS Households	39,375,000	40,162,500	40,965,750	41,785,065	42,620,766	43,473,182	44,342,645	45,229,498	46,134,088	47,056,770	
Ending LOS HH Penetration	0.0%	0.5%	2.0%	4.0%	6.0%	7.0%	7.4%	7.3%	7.2%	7.1%	
Ending Internet End Users	0	200,813	819,315	1,671,403	2,557,246	3,043,123	3,281,356	3,301,753	3,321,654	3,341,031	
Service Revenue	\$0.00	\$5.00	\$5.00	\$5.00	\$5.00	\$5.00	\$5.00	\$5.00	\$5.00	\$5.00	
Installation Revenue (% of Service Revenue)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Operating Expense -- % of Revenues	0.0%	2.0%	1.0%	0.5%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	
Selling, G&A Expenses -- % of Revenues	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Monthly Churn	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Capital Expenditures											
Variable Equipment Cost per Gross Add	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Rate of New Equipment Needs per Gross Add	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Variable Labor and Other Costs per Gross Add	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Total Variable Cost per Gross Add	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Total Variable Costs	-	-	-	-	-	-	-	-	-	-	
Maintenance	-	-	-	-	-	-	-	-	-	-	
Total Internet Capital Expenditures	-	-	-	-	-	-	-	-	-	-	
Operating Results											
Total Internet Revenue	\$ -	\$ 12,048,750	\$ 49,158,900	\$ 100,284,156	\$ 153,434,759	\$ 182,587,363	\$ 196,881,345	\$ 198,105,202	\$ 199,299,261	\$ 200,461,840	
Operating Expense	-	240,975	491,589	501,421	460,304	547,762	590,644	594,316	597,898	601,386	
Selling, G&A Expenses	-	-	-	-	-	-	-	-	-	-	
EBITDA from Operations	\$ -	\$ 11,807,775	\$ 48,667,311	\$ 99,782,735	\$ 152,974,454	\$ 182,039,601	\$ 196,290,701	\$ 197,510,886	\$ 198,701,363	\$ 199,860,454	
Capital Expenditures	0	0	0	0	0	0	0	0	0	0	
EBITDA less CAPEX	0	11,807,775	48,667,311	99,782,735	152,974,454	182,039,601	196,290,701	197,510,886	198,701,363	199,860,454	
DCF	15% WACC										
	Terminal Value = 10x										
Cashflows	0	11,807,775	48,667,311	99,782,735	152,974,454	182,039,601	196,290,701	197,510,886	198,701,363	2,198,464,996	
Net Present Value	991,004,964										
NPV per Household	\$ 17.62										
* Includes non-operating markets											

## Expand WBA Into ITFS Consortiums

- Current 12-channel model focuses on commercial channels
- Separate WBA business could be constructed for serving ITFS customer base
- Similar business model to current Newco projections
- Supports ITFS partners in “long-term” relationships

# ITFS WBA

ITFS Wireless Broadband Access											
DCF Value per Household											
	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	
Number of Markets	10	10	10	10	10	10	10	10	10	10	
Total Footprint Households	4,000,000	4,080,000	4,161,600	4,244,832	4,329,729	4,416,323	4,504,650	4,594,743	4,686,638	4,780,370	
Average Line of Sight	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%	
LOS Households	2,800,000	2,856,000	2,913,120	2,971,382	3,030,810	3,091,426	3,153,255	3,216,320	3,280,646	3,346,259	
Ending LOS HH Penetration	0.0%	2.0%	3.5%	4.0%	4.2%	4.3%	4.4%	4.5%	4.5%	4.5%	
Ending WBA Customers	0	57,120	101,959	118,855	127,294	132,931	138,743	144,734	147,629	150,582	
Service Revenue	\$45.00	\$46.35	\$47.74	\$49.17	\$50.65	\$52.17	\$53.73	\$55.34	\$57.00	\$58.71	
Installation Revenue (% of Service Revenue)	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	
Operating Expense – % of Revenues	0.0%	80.0%	60.0%	50.0%	45.0%	40.0%	39.0%	38.0%	38.0%	38.0%	
Selling, G&A Expenses – % of Revenues	0.0%	40.0%	35.0%	34.0%	33.0%	32.0%	31.0%	30.0%	30.0%	30.0%	
Monthly Churn	0.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	
Capital Expenditures											
Variable Equipment Cost per Gross Add	\$1,000.00	\$800.00	\$650.00	\$500.00	\$475.00	\$451.25	\$428.69	\$407.25	\$386.89	\$367.55	
Rate of New Equipment Needs per Gross Add	100%	50%	20%	18%	15%	15%	15%	15%	15%	15%	
Variable Labor and Other Costs per Gross Add	\$200.00	\$200.00	\$200.00	\$200.00	\$200.00	\$200.00	\$200.00	\$200.00	\$200.00	\$200.00	
Total Variable Cost per Gross Add	\$1,200.00	\$600.00	\$330.00	\$290.00	\$271.25	\$267.69	\$264.30	\$261.09	\$258.03	\$255.13	
Total Variable Costs	-	34,275,427	14,806,481	4,913,117	2,303,773	1,524,650	1,552,399	1,581,235	764,468	771,190	
Hub Builds and Maintenance	2,000,000	1,000,000	1,030,000	1,060,900	1,092,727	1,125,509	1,159,274	1,194,052	1,229,874	1,266,770	
Total Video Capital Expenditures	2,000,000	35,275,427	15,836,481	5,974,017	3,396,500	2,650,159	2,711,673	2,775,287	1,994,342	2,037,960	
Operating Results											
Total WBA Revenue	\$ -	\$ 32,723,248	\$ 60,163,328	\$ 72,237,249	\$ 79,687,076	\$ 85,712,557	\$ 92,143,790	\$ 99,006,408	\$ 104,016,132	\$ 109,279,349	
Operating Expense	-	26,178,599	36,097,997	36,118,624	35,859,184	34,285,023	35,936,078	37,622,435	39,526,130	41,526,152	
Selling, G&A Expenses	-	13,089,299	21,057,165	24,560,665	26,296,735	27,428,018	28,564,575	29,701,922	31,204,840	32,783,805	
EBITDA from Operations	\$ -	\$ (6,544,650)	\$ 3,008,166	\$ 11,557,960	\$ 17,531,157	\$ 23,999,516	\$ 27,643,137	\$ 31,682,051	\$ 33,285,162	\$ 34,969,392	
Capital Expenditures	2,000,000	35,275,427	15,836,481	5,974,017	3,396,500	2,650,159	2,711,673	2,775,287	1,994,342	2,037,960	
EBITDA less CAPEX	(2,000,000)	(41,820,077)	(12,828,314)	5,583,943	14,134,656	21,349,357	24,931,464	28,906,764	31,290,820	32,931,431	
DCF											
15% WACC											
Terminal Value = 10x											349,693,916
Cashflows	(2,000,000)	(41,820,077)	(12,828,314)	5,583,943	14,134,656	21,349,357	24,931,464	28,906,764	31,290,820	382,625,347	
Net Present Value	99,950,306										
NPV per Household	\$ 24.99										

# "The Other Business"

Incremental Spectrum Uses											
DCF Value per Household											
	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	
Number of Markets	260	260	260	260	260	260	260	260	260	260	
Total Footprint Households	66,900,000	68,238,000	69,602,760	70,994,815	72,414,712	73,863,006	75,340,266	76,847,071	78,384,013	79,951,693	
Average Line of Sight	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%	
LOS Households	46,830,000	47,766,600	48,721,932	49,696,371	50,690,298	51,704,104	52,738,186	53,792,950	54,868,809	55,966,185	
Ending LOS HH Penetration	0.4%	0.9%	2.3%	4.0%	5.7%	6.5%	6.9%	6.8%	6.7%	6.7%	
Ending Customers	165,172	427,865	1,099,557	1,977,158	2,880,330	3,381,016	3,634,520	3,670,665	3,703,522	3,736,224	
Service Revenue	-	-	-	-	-	-	-	-	-	-	
Installation Revenue	-	-	-	-	-	-	-	-	-	-	
Operating Expense -- % of Revenues	60.0%	56.5%	40.4%	30.1%	24.2%	21.4%	20.6%	21.0%	21.6%	22.2%	
Selling, G&A Expenses -- % of Revenues	60.0%	42.1%	28.0%	22.5%	18.9%	17.5%	17.0%	17.0%	17.5%	18.0%	
EBITDA Margin	-20.0%	1.3%	31.6%	47.4%	56.9%	61.1%	62.4%	62.0%	60.9%	59.9%	
Capital Expenditures											
Variable Equipment Cost per Gross Add	-	-	-	-	-	-	-	-	-	-	
Rate of New Equipment Needs per Gross Add	-	-	-	-	-	-	-	-	-	-	
Variable Labor and Other Costs per Gross Add	-	-	-	-	-	-	-	-	-	-	
Total Variable Cost per Gross Add	-	-	-	-	-	-	-	-	-	-	
Total Variable Costs	1,254,944	35,392,253	16,755,004	6,912,936	4,356,490	3,631,905	3,715,873	3,802,652	3,045,594	3,113,833	
Hub Builds and Maintenance	4,000,000	3,000,000	2,970,000	2,942,700	2,918,073	2,896,094	2,876,742	2,859,996	2,845,840	2,834,257	
Total Video Capital Expenditures	5,254,944	38,392,253	19,725,004	9,855,636	7,274,563	6,527,999	6,592,615	6,662,648	5,891,433	5,948,090	
Operating Results											
Total WBA Revenue	\$ 69,411,881	\$ 118,326,589	\$ 188,806,580	\$ 258,347,282	\$ 325,727,493	\$ 368,151,728	\$ 396,619,298	\$ 412,975,998	\$ 428,011,474	\$ 443,866,074	
Operating Expense	41,647,129	66,874,598	76,331,762	77,816,466	78,918,091	78,767,580	81,716,270	86,879,794	92,496,382	98,459,990	
Selling, G&A Expenses	41,647,129	49,866,595	52,850,905	58,032,757	61,486,885	64,373,187	67,298,473	70,254,458	74,848,468	79,727,515	
EBITDA from Operations	\$ (13,882,376)	\$ 1,585,396	\$ 59,623,913	\$ 122,498,059	\$ 185,322,516	\$ 225,010,960	\$ 247,604,554	\$ 235,841,746	\$ 260,666,624	\$ 265,678,569	
Capital Expenditures	5,254,944	38,392,253	19,725,004	9,855,636	7,274,563	6,527,999	6,592,615	6,662,648	5,891,433	5,948,090	
EBITDA less CAPEX	(19,137,320)	(36,806,857)	39,898,909	112,642,423	178,047,953	218,482,961	241,011,939	249,179,098	254,775,191	259,730,479	
DCF											
15% WACC											
Terminal Value = 10x											
Cashflows	(19,137,320)	(36,806,857)	39,898,909	112,642,423	178,047,953	218,482,961	241,011,939	249,179,098	254,775,191	2,656,785,695	
Net Present Value	1,194,546,552										
NPV per Household	\$ 17.86										

## **Offer Voice/Data/Video Business Bundles**

- A business/news/weather/sports video package offered to business voice/data ATM customers
- Logical bundling package
- Delivered to televisions or directly to PC's

## Partner with DTH Providers

- Bundling of local off-air channels
- MMDS operators could be logical contract sales/installation/service provider

## Deploy Digital Video

- Mid-size to large markets
- HITS or locally-encoded
- Stand-alone business or distance-learning specialty
- Capital-intensive

## Select Newco Spectrum NPV's

	Phase 1 Launch	Phase 2 Launch	Mid-size (>100K)	Rural (<100K)
Markets	31	30	73	126
WBA	\$900MM	-	-	-
A. Video	-	-	-	\$100MM
Lease	\$300MM	\$300MM	\$200MM	\$200MM
ITFS	-	-	\$100MM	-
Bundles	-	-	-	-
DTH	-	-	-	-
D. Video	-	-	-	-

Dashes indicate additional spectrum usage and value that has not been quantified in this presentation

## Summary

- Wireless Broadband Access creates value by providing a wholesale local loop alternative in select markets
- NewCo adds value through operational RF experience and spectrum management
- Spectrum and technology engineering leverages the benefits of MMDS while minimizing line-of-sight issues
- NewCo's business case provides a conservative approach yet yields a strong internal rate of return
  - pricing levels are competitive and conservative
  - CPE costs are heavily subsidized
  - operational costs are conservative and comprehensive
  - capital costs are loaded with contingencies
- NewCo's "Other Businesses" yield additional positive returns in WBA and non-WBA markets